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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,662	03/11/2004	Hyun-Cheol Shin	5000-1-543	6299
33942	7590	01/19/2006	EXAMINER	
CHA & REITER, LLC 210 ROUTE 4 EAST STE 103 PARAMUS, NJ 07652			DIACOU, ARI M	
			ART UNIT	PAPER NUMBER
			3663	
DATE MAILED: 01/19/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/798,662		SHIN ET AL.	
	Examiner		Art Unit	
	Ari M. Diacou		3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 12-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10 and 11 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Because the applicant did not argue the examiner's reasons or logic for the election/restriction requirement, the applicant is considered to have elected without traverse.
2. Applicant's amendment to the claims 7-11 is sufficient to categorize the subject matter of claims 7-11 with the subject matter of Group 1.
3. Applicant's election without traverse of Group 1, directed to claims 1-11 in the reply filed on 12-1-2005 is acknowledged.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-11 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The frequencies at which the device is enabled is not present anywhere in the disclosure. Without this information, it would be impossible for one skilled in the art to

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make the invention without undue experimentation, or use the invention in the best mode.

6. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Regarding claim 1, there is no reference in the specification no the claims by which one could ascertain the frequency band covered by the phrase "WDM channels."

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. The italicized clauses are essentially method limitations or statements or intended or desired use and are being examined as if the apparatus were capable of performing the functions described in said clauses. The applicant is claiming an apparatus, not a method or process. Thus, these claims as well as other statements of intended use do not serve to patentably distinguish the claimed structure over that of the reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re

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Finsterwalder, 168 USPQ 530; In re Casey, 512 USPQ 235; In re Otto, 136 USPQ 458;

Ex parte Masham, 2 USPQ 2nd 1647.

See MPEP § 2114 which states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ 2nd 1647

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.

Apparatus claims cover what a device is not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

As set forth in MPEP § 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

9. Claim 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Fenner et al. (USP No. 3484713).

- Regarding claims 1 and 5, Fenner discloses a multi-wavelength light source [The examiner regards it inherent that a laser is multi-wavelength, especially when it is being driven below the lasing threshold. The Wikipedia article cited specifically describes how the linewidth of a light source is orders of magnitudes larger when a light source adapted to lase is being driven below the lasing threshold.] comprising:

- a substrate; [Fig. 1, #10] [Col. 2, line 48-53]
- a laser laminated on a first portion of the substrate *wherein said laser adapted for generating multi-wavelength light including a plurality of peaks whose wavelengths and spacing are identical to these of WDM channels*

when driven by a driving current below a predetermined threshold current;
and [Fig. 1, #1] [Col. 2, lines 37-52] [Furthermore, any laser is capable of being driven by a current lower than that current which would cause excitation above the lasing threshold.] [Fenner discusses the operating current in Col. 1, lines 49-65]

- a semiconductor optical amplifier means for reducing noise being laminated on a second portion of the substrate [While Fenner does not explicitly teach that the optical amplifier 2 reduces noise, the examiner regards it as inherent that noise (taken to mean spontaneous emission) will reflect off of surface 30, thereby reducing noise. Since the applicant has not specified the frequency or intensity of the noise to be reduced, it is regarded as inherent that placing any optical amplifier in front of any laser will reflect (and thereby reduce) some quantity of light that the applicant could consider noise], said semiconductor optical amplifier being arranged on the second portion of the substrate so as to amplify an output from the fabry-perot laser by having a first end surface comprising a slanted surface of the semiconductor optical amplifier that is opposed to a side surface of the laser, [Fig. 1, #2] [Col. 3, lines 35-70] [It is noted that the use of the word "means" is improper for the purposes for invoking 35 U.S.C. 112 ¶ 6, but does not per se, negative the claim with respect to paragraphs 1-5]

- *wherein the semiconductor optical amplifier means is adapted to reduce a relative intensity of noise in the plurality of channels of the multi-wavelength light and simultaneously amplifying the multi-wavelength light by being driven in a gain saturation state. [Aside from the examiner's previous argument that any amplifier will reduce noise, any amplifier is also capable of being operated in a gain saturation state.] [Col. 3, lines 58-70]*
- Regarding claim 2, Fenner discloses the multi-wavelength light source as claimed in claim 1, wherein the laser comprises a fabry-perot laser, and the multi-wavelength light source further comprises:
 - a high reflection layer coated on a first end surface of the multi-wavelength light source, the first end surface of the multi-wavelength light source including a first end surface of the fabry-perot laser; and [Col. 2, line 66 – Col. 3, line 2]
 - anti-reflection layers being arranged on a side surface of the Fabry-Perot laser, the slanted surface of the semiconductor optical amplifier, and a second end surface of the multi-wavelength light source, [it is well known that to make a source incoherent, one removes the front reflector, see art pertaining to superluminescent light-emitting diodes]
 - wherein the second end surface of the multi-wavelength light source includes a second end surface of the semiconductor optical amplifier means, and [Fig. 1, #29]

- wherein the side surface of the laser and the slanted surface of the semiconductor optical amplifier are opposed to each other. [Fig. 1, #19 and 30 are opposed to each other]
- Regarding claims 3 and 6, Fenner discloses the multi-wavelength light source as claimed in claim 1, wherein a band gap of the semiconductor optical amplifier means is smaller than that of the Fabry-Perot laser, so that a spectrum of the multi-wavelength light outputted from the Fabry-Perot laser coincides with a gain spectrum that is amplified by the semiconductor optical amplifier. [Fenner discusses the desire to couple the amplifier to the laser in the 2nd paragraph of Col. 3, the examiner regards it as inherent to this aim that the amplifier have “a gain spectrum that is amplified by the semiconductor optical amplifier.”]
- Regarding claim 4, Fenner discloses the multi-wavelength light source as claimed in claim 1, wherein the slanted surface of the semiconductor optical amplifier means opposed to the Fabry-Perot laser is inclined at a predetermined angle with respect to the side surface of the Fabry-Perot laser. [The examiner regards it as inherent that the slanting angle is predetermined, because there is no way known in the art to change the angle of a semiconductor feature after fabrication.]

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 7, 8, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fenner (USP No. 3484713) in view of Fussgänger (USP No. 5202780).

- Regarding claim 7, Fenner discloses the details of the light source as claimed in the first two paragraphs of the amended claim 7 of the instant application, but

fails to disclose the particulars of the surrounding WDM system. Fussgänger teaches:

- a demultiplexer for demultiplexing the multi-wavelength light into a plurality of downstream channels having different wavelengths so as to output the demultiplexed downstream channels; [Fig. 1, #21]
- a first multiplexer/demultiplexer for demultiplexing an upstream optical signal outputted from the remote node into a plurality of upstream channels having different wavelengths, and multiplexing the downstream channels into a downstream optical signal so as to output the multiplexed optical signal to the remote node; and [Fig. 1, #25]
- a plurality of photodetectors for detecting the upstream channels demultiplexed by the first multiplexer/demultiplexer. [Fig. 1, #UA_n]

Therefore, it would have been obvious to one skilled in the art (e.g. an optical engineer) at the time the invention was made, to place the multiwavelength source of Fenner into the device of Fig. 1 #12 of Fussgänger, for the advantage of reducing the complexity associated with multiplexing the multiple signals that must be transmitted.

- Regarding claim 8, the parent claim being rejected over Fenner in view of Fussgänger above, Fenner further discloses the laser of the light source section including a Fabry-Perot laser. [Col. 3, line 1]
- Regarding claim 10, the parent claim being rejected over Fenner in view of Fussgänger above, Fussgänger further discloses:

- the remote node including a second multiplexer/demultiplexer for multiplexing a plurality of upstream channels having different wavelengths, which are output from the subscribers, into an upstream optical signal so as to output the multiplexed optical signal to the central office, and demultiplexing the downstream optical signal output from the central office into a plurality of downstream channels so as to output the demultiplexed downstream channels to a corresponding subscriber. [Fig. 1, #25]
- Regarding claim 11, the parent claim being rejected over Fenner in view of Fussgänger above, Fussgänger further discloses wherein each subscriber comprises:
 - a photodetector for detecting a corresponding downstream channel; [Fig. 1, # UA_n]
 - a light source for outputting the upstream channel to the remote node; and [Fig. 1, # UB_n]
 - a wavelength selection coupler for outputting the downstream channel to the photodetector, and outputting the upstream channel generated by the light source to the remote node. [Fig. 1, #25]

Allowable Subject Matter

14. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

15. While patent drawings are not drawn to scale, relationships clearly shown in the drawings of a reference patent cannot be disregarded in determining the patentability of claims. See In re Mraz, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

16. The references made herein are done so for the convenience of the applicant. They are in no way intended to be limiting. The prior art should be considered in its entirety.

17. The prior art which is cited but not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ari M. Diacou whose telephone number is (571) 272-5591. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AMD 1/17/2006


JACK KEITH
SUPERVISORY PATENT EXAMINER